DOCUMENT RESUME

ED 148 082 EC 103 465

AUTHOR Ortman, Elaine
TITLE Attachment Behaviors in Abused Children During Brief Separation from Mother.
PUB DATE 77
NOTE 42p.

EDRS PRICE MF-$0.83 HC-$2.06 Plus Postage.
DESCRIPTORS Affective Behavior; *Attachment Behavior; Behavior Patterns; *Child Abuse; Exceptional Child Research; Infancy; Infant Behavior; Mother Attitudes; Neglected Children; *Parent Child Relationship

ABSTRACT

Examined were differences in attachment behaviors of 14 abused and seven nonabused infants. Videotapes were taken during brief separation and reunion from their mothers and a habituated nonfamiliar figure. Ratings were made of exploration, distress, head turning, following, crying with separation, soothing, positive greeting, differential vocalization, and locomotion. Results indicated significant differences in attachment behaviors of the abused and nonabused Ss. Lack of mother-child bonding in the abuse cases was consistent with M. Ainsworth's observations of children in the nonattached group. (CL)

****
* Documents acquired by ERIC include many informal unpublished *
* materials not available from other sources. ERIC makes every effort *
* to obtain the best copy available. Nevertheless, items of marginal *
* reproducibility are often encountered and this affects the quality *
* of the microfiche and hardcopy reproductions ERIC makes available *
* via the ERIC Document Reproduction Service (EDRS). EDRS is not *
* responsible for the quality of the original document. Reproductions *
* supplied by EDRS are the best that can be made from the original. *
****

ED148082

U S DEPARTMENT OF HEALTH,
EDUCATION & WELFARE
NATIONAL INSTITUTE OF
EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

ATTACHMENT BEHAVIORS IN ABUSED CHILDREN DURING BRIEF SEPARATION FROM MOTHER

BY

Elaine Ortman

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

Elaine Ortman

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC) AND USERS OF THE ERIC SYSTEM"

EC103465

TABLE OF CONTENTS

	Page
ABSTRACT	iv
ACKNOWLEDGEMENTS	v
LIST OF TABLES	vii
Chapter	
I. INTRODUCTION	1
II. REVIEW OF THE LITERATURE	4
III. METHODOLOGY	11
IV. RESULTS AND DISCUSSION	17
V. SUMMARY AND CONCLUSIONS	27
REFERENCES	33

ABSTRACT

A modification of the Ainsworth (1972) paradigm was used in this research to study the differences in attachment behaviors manifested by 9 to 23-month-old abused and nonabused children during brief separation and reunion from their mothers and a habituated nonfamiliar figure. Videotapes were taken of 21 mother-infant dyads, 14 of whom were abused, and 7 of whom were in the nonabused group. A quasi-experimental two-group design was used in which treatment variables were introduced, observations via videotapes were scored, and the significant differences between the groups is presented. Results of this study showed that there is a significant difference in attachment behaviors manifested by the children studied in the abused and nonabused groups. Lack of attachment behaviors both on separation and reunion in the abuse and neglect cases studied appears consistent with Ainsworth's (Foss, 1963) observations of children in the "nonattached" group.

A review of the literature regarding the nature of attachment, separation anxiety, and child abuse is presented. Indications for further research and clinical application of the research for evaluation, prevention, and intervention is discussed.

LIST OF TABLES

Table		Page
1.	Differences Between Abuse and Nonabuse Groups	20
2.	Significant Differences in the Abuse Group Between Natural Parents and Foster Parents	21
3.	Relationship Between Nominal Variables in Abuse and Nonabuse Groups	22
4.	Relationship Between Nominal Variables in Abuse and Nonabuse Groups	22
5.	Correlations Between Behaviors in Nonabuse Group	24
6.	Correlations Between Behaviors in Abuse Group	25

Copyright © Elaine Ortman

All Rights Reserved

CHAPTER I

INTRODUCTION

The relationship between a child and his/her parents represents the cornerstone for a child's development as an individual and as a member of his/her society. According to Sullivan (1953), Bowlby (1958), and Erikson (1963), the initial patterns of relationships that the developing child establishes within his/her family forms the framework for all other relationships. Without the foundation of "tenderness and reciprocal emotions" (Sullivan, 1953), "attachment" (Bowlby, 1958), or "basic trust" (Erikson, 1963), a child's emotional development is impaired. There has been a great deal of theorizing about the characteristics of mother-child relationships; however, there have been fewer substantial research endeavors to evaluate forms of mothering and their effects on the child's development.

Current grant priority funding, legislation of child advocates, mandatory reporting, and mass media campaigns to increase public awareness of the problem reflect the national concern over the incidence of child abuse. The emotional fervor is justifiable, but as is so often true, the moral indignation can cloud judgment and lead to policies that can be equally abusive. Decisions guiding legislation and policies in behalf of children need to be based on clear understanding of principles of child development and family relations.

Child abuse is a family tragedy, devastating for the child, for the abusing parents, and for society. Kempe and Helfer (1972) have written extensively identifying significant variables of abusive situations. One of the major variables appears to be a distortion of the normal mother-child relationship which is seen as nurturant and protective. Even if the mother is not the abuser, she may aid the abusing person by not intervening where she could.

Ainsworth (1972) and Bowlby (1958) have written on the attachment or bonding relationship between mothers and children. Ainsworth (1972) has researched behavioral characteristics of attachment in normal mother-child relationships. If there is a distortion of the mother-child relationship in an abusive case, there may be evidence in the child's attachment behavior. If mother-child attachment behavior could be identified as significantly different between normal and abusive mother-child dyads, then there would be a potential for early identification, early prevention, and constructive intervention to help prevent future family tragedies.

Attachment and bonding are used interchangeably in this study to describe affectional ties that children form between themselves and another person. This tie endures over time and are manifested by attachment behaviors. Children display a set of behaviors, defined as attachment behaviors, which consistently discriminate between their parents and unfamiliar persons (Cohen, 1974). Separation anxiety is one aspect of mother-child attachment behavior. Beginning around the age of six months and lasting until about two years, a characteristic pattern of normal mother-child separation behaviors is commonly

identified by children's demonstrative distress upon separation from their mothers. The absence of this characteristic pattern of interaction should alert human services personnel to possible problems in the mother-child relationship.

This study compares the differences between attachment behaviors of abused and nonabused children during brief separation and reunion. The underlying hypothesis is that there is a distortion in the bonding process between mother and child where children are abused or neglected.

CHAPTER II

REVIEW OF THE LITERATURE

The original mother-infant bond is the well-spring for subsequent child attachments, and is therefore the formative relationship through which a child develops a sense of self. Throughout an individual's lifetime the strength and character of this attachment will influence the quality of all future bonds (Klaus & Kennel, 1976). Given the opportunity, children who have an attachment relationship with their mothers seem able to form attachments to others (Ainsworth, 1963). Children who do not attach to their mothers or mother substitutes attach to no one.

Bonding, attachment, and separation anxiety behaviors are all part of normal child development. During the bonding process infants move from a primitively differentiated concept of their mothers as objects which satisfies their physical needs, to the concept of their mothers as people whose presence is in itself a source of emotional comfort (Goldfarb, 1945). The intensity of the attachment depends on the strength of the child's need and the extent to which a significant other is prepared to satisfy it (Foss, 1963).

Sears (Gewirtz, 1972) identified three essential conditions for attachment formation: The maturation within each child of a specific genetic propensity (hypothesized by Bowlby in 1958), the consistent and extensive expression of love by a caretaker, and the

development of an ability to discriminate the caretaker from other persons.

Bowlby (1958) identified four main phases of children's development of attachment behavior: (1) orientation and signals without discrimination of the mothering figure (manifested by the presence of soothing, turning head towards mother); (2) orientation and signals directed toward one or more discriminated figures (manifested by differential crying, positive greeting, and differential vocalization); (3) maintenance of proximity to a discriminated figure (manifested by following mother through locomotion and exploration); and, (4) formation of a reciprocal relationship. Ainsworth (1963), found a pattern of attachment behaviors, rather than a single criterion, emerged at different developmental stages.

Different theorists have conceptualized various components of attachment. Ainsworth (1972) hypothesized eight major components, including six of interest to this study. The first component refers to "specificity," which means that attachment occurs in a one-to-one relationship as children clearly demonstrate preference for their mothers over unfamiliar figures. The second component is "duration," the quality of attachment which endures over time. The developmental level of children comprises the third component. For attachment to occur, children must reach the level of object constancy in their cognitive development (Angel, 1972). Strong affect is the fourth component. Proximity-seeking and contact-maintaining behaviors demonstrated by children towards their mothers makes up the fifth component. Ainsworth's final component of interest to this study is the quantity

of interaction and consequent learning of the child. If infants have had insufficient interaction with any one figure, they may not become attached to anyone. In addition to Ainsworth's components, Cairns (1972) notes sudden behavioral disruption, such as increased activity and vocalization when separated from the mothers.

Bowlby (1958) described the pattern of children's behaviors that occurs when mothers initially leave their children as a distress syndrome resulting from the separation experience. He describes these sequential phases of separation anxiety. In the initial phase, which is studied in this research, children appear acutely distressed at having lost their mothers, they seek to recapture their mothers through attachment behaviors identified as sucking, clinging, or following (moving toward the door after mother leaves). These behaviors are seen as an attempt by children to regain close proximity to their mothers.

Other investigators have expanded attachment behaviors identified by Bowlby (1958). Smith (1975) included children's crying and smiling, as important attachment behaviors. Ainsworth and Bell (1970) demonstrated a relationship between infant-mother attachment and children's separation anxiety and exploration. They concluded that attachment behavior was heightened in situations which children perceived as threatening, such as the actual or impending separation from the attachment figure.

Infants' responses to separation and reunion sequences in Ainsworth's (1972) paradigm correlated highly with a number of maternal caretaking variables (Ainsworth, Bell, & Stayton, 1971, 1972; Stayton & Ainsworth, 1973). This supports Rosenthal's (1973) position

that attachment behavior is a characteristic of the mother-child interactional pattern. Although no conclusive studies of attachment behaviors and bonding with abuse or neglect cases have been done, the theoretical premises and research findings are relevant to the interactional pattern of abusive parents and their children.

Other studies have suggested a disturbed mother-child relationship in child abuse cases. In their study of 23 child abuse cases, Morse, Sahler, and Friedman (1970) found that a satisfying mother-child relationship as perceived and verbally reported by mothers was the only characteristic common to a majority of previously abused children who appeared to be developing normally. Ounsted, Oppenheimer, and Lindsey (1974) observed 24 families suspected of abuse and found that the majority had been referred by their physicians for gross abnormalities in the "mother-child relationship," i.e., lack of responsiveness of mothers to their children.

Kempe and Helfer (1972) identified social and psychopathological aspects of the child abuse syndrome. Several precipitating factors have been suggested: The characteristics of the parents (Paulson, 1975), defects in the child (Melowe & Lourie, 1964), and stress factors in the environment (Gelles, 1975; Nazzaro, 1974). Of the parental characteristics it is noted that child abuse is frequently multigenerational (Shearer, 1977). Abusive parents often come from abuse situations in their own families. Abusive parents are described as never learning how to trust others or to get their own needs met. Because of their early childhood experiences, they cannot develop awareness of other's needs. These parents are unable to assess

stress or change in their environment, their internal needs, or the needs of their children. They have difficulty in intervening to meet these needs. Consequently, environmental stress, such as loss of employment, precipitates a crisis for these families with inadequate problem-solving skills.

Steele and Pollock (1968) found that abusive parents had suffered a lack of mothering themsleves and thereafter revealed deficiencies in their own motherliness. When Steele and Pollock studied 60 sets of abusive parents, they concluded that a defect in ego attitude regarding "motherliness" or "fatherliness" interfered with the parent's ability to perform the mechanics of child care.

Abusive mothers studied by Schaffer and Emerson (1974) displayed defects in maternal responsiveness, which is associated with the strength of attachment. Klein and Stern (1971) suggested that social isolation and a previous background of emotional deprivation was a predisposing factor for abusive mothers in low-birth-weight infants. A delay in the "mothering" process emerged as a predominant feature in the pathogenesis of child abuse situations. In looking at abused, low-birth-weight premature infants who required extended hospitalization, Sterm (1973) found that abusive mothers had difficulty forming attachments to their infants and responded with indifference or rejection, which inhibited the children's abilities to attach to their mothers (Rutter, 1974).

Behavioral defects perceived by parents or actual defects in the child are varied. Abused children may learn to respond with compliance. This usually results in role reversal with children

meeting their parents' dependency needs. These children may use provocative behavior to draw attention to their needs in an abusive home situation. Rutter (1974) hypothesized that the failure to form bonds in early childhood is particularly associated with later development of an "affectionless character." This implies that there may be a sensitive period for the development of attachment after which bond formation becomes increasingly less likely.

As early as 1942, Bakwin observed that emotionally neglected children displayed a lack of warmth and a tendency to shift attention from one person to another with no selectivity. Terr (1970) observed that when the primary caretaker was the abusive parent, children were prone to ego defects which interfered with attachment. These defects--withdrawal, indifference to mother, and psychomotor retardation--made it progressively more difficult for mothers to relate to their infants. Terr noted that five of the six children who had the abusive parent as the primary caretaker displayed these ego defects. The three abused children in this study who didn't show these ego defects had persons other than the abusing parent as primary caretaker.

Galdston (1975) observed that the behavior of abused children appeared aimless, their emotions seemed bland, and, when faced with frustrating or adverse situations, they responded stereotypically with temper tantrums or withdrawal. Previously, Galdston (1965) had noted that in the hospital abused children displayed profound apathy or extreme fright but not the expected separation anxiety behavior. Silver (1968) observed that abused children, unlike the normal

population, didn't look toward their parents for assurance in emergency room situations. These children showed no real expectation of being comforted by their parents. He concluded that abused children learned that their parents were not a source of safety, but a signal for danger. They sought safety by sizing up their situation rather than seeking out their parents. Ounsted, Oppenheimer, and Lindsey (1974) interpreted the "frozen watchfulness" that abused children displayed was an adaptive response to the unpredictable loving and abusing behaviors of their parents.

Most of the research in child abuse has been historical and descriptive. A quasi-experimental research model was used in this study to look at the differences in mother-child relationships manifested during brief separation and reunion in abused and nonabused children. The null hypothesis states that there is no significant difference in attachment behaviors manifested in 9 to 23-month-old-abused and nonabused children during brief separation and reunion.

CHAPTER III

METHODOLOGY

This research was carried out as part of pilot work done in conjunction with Dr. Theodore Gainesbauer at the University of Colorado Medical Center during the summer of 1976. This study explored and expanded knowledge gained through a research model of the nature of mother-child interactional process in abuse situations. Dr. Theodore Gainesbauer, Dr. David Murazak, Dr. Robert Harmon, and the author developed the modified Ainsworth (1972) paradigm used in this study.

Design

This was a quasi-experimental two-group design in which treatment variables were introduced and observations were made regarding differences between the groups (Leedy, 1974). Each group was subjected to the same procedures. Primary treatment variables were separation and reunion with both mother and habituated nonfamiliar stranger.

Criterion variables manifested by children included exploration from familiar base, distress, head-turning, following, crying with separation, soothing, positive greeting, differential vocalization, and locomotion. In this study the mothers were considered the familiar figures. Dr. Gainsbauer was the habituated nonfamiliar

figure, or the stranger who was presented to the infant for a period of habituation prior to measurement (Cohen, 1974).

Exploration from the familiar figure was defined as present when the child made excursions away from the familiar figure (mother) and manipulated other objects/people visually, verbally, or manually, but returned to familiar person from time to time (Ainsworth, 1963). Distress, as defined by Harmon, Morgan and Klein (1976), was considered present if the child displayed any fussing and/or crying behavior over minimal or brief whimpering. This was measured on a one-to-five ordinal level scale with one being absence of crying and five being cumulative and durational crying.

If the child turned his/her head toward the door after mother left, the variable "turns head" was considered present. "Following" behavior was defined as occurring if the child crawled and/or walked to the door after mother left (Ainsworth, 1963).

As in Stayton and Ainsworth's study (1973), crying with separation was defined as present if the child cried when mother or stranger left the room; if crying had begun previous to departure, then crying on departure was measured if it increased in intensity at the time of departure or within 10 seconds thereafter. Conversely, soothing was defined as present if sustained cessation of the child's crying occurred (Harmon, Morgan, & Klein, 1976). If the child acknowledged the re-entering person by smiling, laughing, bouncing, jiggling, leaning, lifting, arms in greeting and/or standing up in response to the entering figure, then positive greeting was identified as occurring (Ainsworth, Bell, & Stayton, 1972).

Differential vocalization was identified as occurring when a child vocalized more readily and frequently in interaction with mother than with stranger in sequences in which both were present (Ainsworth, 1963). In this study locomotion was defined as present if a child moved his/her body from one spot to another by crawling and/or walking.

Subjects

The experimental group contained 14 mother-child dyads. All of the children had documented histories of abuse or neglect. Courts had placed three of the children with foster parents prior to testing. Thus, three of the "mothers" were the foster parents. There was one set of identical twins. The control group was composed of seven mother-child dyads. Mothers in both groups were primary caretakers at the time of testing. Children in both groups were between the ages of 9 to 23-months-old. All mothers volunteered and signed informed consent forms. The control group was composed of mothers who expressed interest in participating in a developmental research project by responding to a form letter sent to parents of newborn infants. Abused and/or neglected cases were referred by social service and public health agencies in Denver and the Tri-county areas around Denver, as well as from the Child Protection Team at Colorado General Hospital, which is associated with the National Center for the Study of Child Abuse. Due to difficulty in case finding, a high drop-out rate of experimental cases, and the time-limits of the pilot work (four months), the groups were not random samples.

Procedure

This study was carried out in the infant playroom at the University of Colorado Medical Center. Observations of mother-child interactions were videotaped through a one-way mirror with a single camera. The projectionist greeted each mother and familiarized her with the experimental procedure. The standardized set of instructions included a shortened outline of the experimental sequence. The habituated nonfamiliar person was present for approximately 30 to 40 minutes before mother separation.

The paradigm used had seven specific phases in this study. The first was a two-minute period in which each mother was encouraged to make her infant comfortable in the playroom setting. After two minutes a knock on the observation window signaled the mother to sit in the labeled chair in the playroom. The second phase contained five minutes of free play in which initiation for interaction was left up to the infant. These phases provided the investigator with information regarding mother-infant interaction, child temperament, and spontaneous and responsive exploration, without the interference of the stranger.

The third phase began with a one-minute period in which stranger, mother and child were present. The stranger initiated play interaction with the child. Then a knock on the observation window signaled the mother to leave the playroom. The mother was directed to say goodbye to the infant as if she were leaving the child with a babysitter. The fourth phase, a three-minute period of separation, followed. During the first minute the stranger remained closely

available for play with the infant at the infant's initiation. The stranger did not intervene unless the infant appeared distressed. If the infant was not distressed after one minute, the stranger took a designated chair in the playroom. If distress occurred at any time and the infant could not be soothed, the mother was requested to return. At the end of this phase, the projectionist asked the mother to return at a time when the infant was away from the door so that the investigator could observe reunion behaviors. In the fifth phase, the stranger remained in the playroom for a two-minute period so that a comparison of the differential interactions between mother and stranger could be made. The stranger was absent for a three-minute period in the sixth phase and returned for one minute of reunion in the seventh.

Analysis of Data

The videotapes were rated at 30-second intervals by two different raters in a double blind situation, in which neither the subjects nor the raters knew which group contained the normal population. Eighty-five percent agreement between raters was considered reliable (Treece & Treece, 1973). The investigator trained the raters and stopped the videotapes at 30-second intervals for scoring, using a stopwatch to measure the time intervals. Raters checked off observations on a score sheet. The percentage of time in which the criterion variables occurred was measured.

The data were analyzed using the Statistical Package for the Social Sciences (SPSS) at the University of Utah Computer Center.

T-test for independent groups was done to determine differences between the groups. Chi-square contingency tables were computed to determine the relationships between nominal variables in abuse and nonabuse groups. One-way analysis of variance (ANOVA) was compared in order to see differences between variables in terms of the effect of the Bayley Developmental Score. Pearson product moment correlation coefficients were computed for each group in order to identify patterns of attachment behaviors. Statistical significance was established at the .05 level.

CHAPTER IV

RESULTS AND DISCUSSION

The children's ages ranged from 9 to 23-months (M = 16.96, s.d. = 4.54). The most frequently occurring age was 13 months. In the abused population the ratio of males to females was 12 to 1; in the control population, it was 2 to 5. In the abused population, the children's birth orders were equally first, second, and third. In the control population, the children studied were most often first and only children.

The abused mother-child dyads contained 14 cases. Three of these mothers were foster parents; the others were the children's natural mothers. Of the natural parent-child dyads, in four cases of the mother was documented as the primary abuser, in four cases the child's father was documented as the primary abuser, and in the remaining three cases both parents were the identified abusers.

There is controversy in the literature regarding the effects of socioeconomic level on both abuse and attachment behavior. Walters (1972) found that socioeconomic class differences affected attachment. However, when Wulbert, Ingelis, Kriegsman and Mills (1975) did their analysis, they found that differences in childrearing practices and infant behaviors were specific to maternal and infant characteristics which cut across socioeconomic labels.

In the present study five out of six of the mothers in the control population versus none in the abuse population graduated

from college. Four out of five of the fathers in the control population versus none in the abuse population held graduate degrees. Eight out of ten of the abusive mothers and four out of nine of the abusive fathers attended high school; two out of nine of the abusive fathers graduated from high school; and one out of nine attended college. In the control population none of the mothers were employed whereas in the abuse population four out of eleven of the mothers were employed on a nonprofessional level. In the control population all of the fathers were employed on a professional level; in the abuse population seven out of nine of the fathers were employed on a nonprofessional level. All mothers in the control population and six out of eleven of those in the abused group were married at the time of testing.

It is significant that eleven out of twelve of the abused children had previous separation experiences, primarily in the form of hospitalization and foster care. Only one out of seven of the children in the control group had previous separation experience in the form of hospitalization. Yarrow (1972) found that the intensity of separation anxiety was inversely related to the amount of experience the infant had with multiple caretakers. Contrary to this, Ainsworth (1963) found that a child cared for by multiple caretakers could form as secure an attachment to one figure as a child who had a more exclusive relationship with the caretaker. Since the groups are disproportionate, no inferences can be made to support either theory.

To determine differences that occurred between groups during the videotaping, t-tests were computed. Significant differences were

determined between abuse and nonabuse groups at various points throughout the paradigm (Table 1). Clinically, the investigator observed evidence of marked inhibition and wariness among abused children. Where the nonabused child showed active pleasure and interest in the play sequences, the abused or neglected child showed lack of responsiveness. A statistically significant difference between abused and nonabused children was found in both absence of exploration and absence of locomotion. A statistically significant difference between natural abusive parents and foster parents (Table 2) occurred in the children's locomotion during the mother/child sequence and in the children's responsive exploration during free play. Although foster parents' interactions seem to be closer to those of the control group, it is difficult to draw inferences from the cases.

It is significant to this study that in the normal population the mother separation often elicited distress vocalization, and mother reunion provoked increased frequency and intensity of attachment behaviors. Conversely, the lack of proximity-seeking and maintaining behaviors, lack of distress with separation, and the lack of reunion behaviors characterized the abused population. Criterion variables which demonstrated statistically significant differences between these two groups included turning heads toward door with mother separation, following upon mother separation, crying during mother separation, locomotion during mother separation, and positive greeting upon mother reunion. Of particular interest was one abused infant who showed no emotional reaction to either mother's separation or return, showed mild to moderate distress, and search behaviors in response to

Table 1

Differences Between Abuse and Nonabuse Groups

Behavior	*t*-value	Significance Level
Absence of exploration during mother/child/ stranger sequence	-2.38	.03
Absence of turns head toward door with mother separation	2.86	.01
Absence of following during mother separation	2.11	.05
Absence of crying during mother separation	2.60	.02
Absence of soothing during mother/child sequence	2.40	.03
Positive greeting with mother reunion	-2.24	.04
Absence of locomotion with mother separation	2.14	.05
Absence of locomotion during mother/child sequence	3.08	.01
Differential vocalization during mother/ child/stranger sequence	-2.07	.05
Bayley score	-2.28	.04

Table 2

Significant Differences in the Abuse Group Between Natural Parents and Foster Parents

Behavior	*t*-value	Significance Level
Locomotion during mother/child sequence	-5.98	.00
Cries with mother separation	-2.82	.02
Responsive exploration during free play	-2.70	.02

stranger's departure and positive greeting upon stranger reunion. This was not seen in any of the nonabused children.

Chi-square contingency tables were computed to determine the relationship between nominal variables in the abused and nonabused groups (Tables 3 and 4). The relationship between level of distress with mother separation and abuse/nonabuse categories was of particular interest. It supported the previously presented data regarding lack of separation anxiety in the abused group. In 10 out of 13 abused children cases, distress during separation was absent; cumulative distress in contrast, occurred in six out of seven nonabuse cases. This relationship was substantial (Cramers *V* = .66). Supportive of the clinical observations regarding lack of exploration and locomotion in abused children was the significant relationship found between locomotion during the sequence where mother, child, and stranger were present (phase three) and abuse/nonabuse categories.

Table 3

Relationship Between Nominal Variables in

Abuse and Nonabuse Groups

Variable	Chi-square	Significance Level
Mother's educational level	18	.00
Father's educational level	15	.01
Father's occupation	10.18	.01
Level of distress during maternal separation	8.18	.02

Table 4

Relationship Between Nominal Variables

in Abuse and Nonabuse Groups

Variable	Fisher's Exact Test
Mother's occupation	.05
Locomotion during mother/child/stranger sequence	.01

In measuring for differences between abused and non-abused children, the question of developmental differences is often posed. In order to see differences between variables in terms of the effect of the Bayley Developmental Score, the investigator divided the subjects into three groups (group one = scores of 90-94; group two = scores of 103-121; and group three = scores of 123-149) and computed one-way analysis of variance. The groups were divided to approximate a normal distribution of the scores. The only significant difference was found in the number of seconds of positive greeting on mother reunion ($F = 3.87$, $p = .05$). Group one, which contained only abused cases, showed no response to mother reunion. It would be difficult to say whether the abuse factor or the developmental lag in this group was responsible for the lack of positive greeting. In group two, the average positive greeting occurred for 21 seconds, while in group three the average response occurred for 60 seconds.

Since no single criterion of attachment could serve as a basis for judging whether or not an infant had become attached to his/her mother, the overall combinations of attachment behaviors were evaluated. In order to identify patterns of combinations of attachment behaviors, Pearson product moment correlation coefficients were computed for each group (Tables 5 and 6). Both abuse and nonabuse groups demonstrated attachment behavior specific to their groups. The outstanding feature was that no one pattern appeared in both groups. Attachment patterns were group specific. This suggested that abused children did not display attachment behavior patterns in the same combinations as identified in the nonabuse population. Thus, if these

Table 5

Correlations Between Behaviors in Nonabuse Group

Behaviors	r value	p value
Bayley score with locomotion during mother/child sequence	.82	.05
Absence of crying during mother/child sequence	-.99	.00
Absence of exploration during mother/child/ stranger sequence with responsive exploration during free play	.79	.03
Absence of following with mother separation with absence of exploration during mother/ child/stranger sequence	.78	.04
Locomotion during mother/child sequence with distress during mother separation	-.88	.04
Absence of crying during mother separation with differential vocalization during mother reunion	.83	.04
Absence of crying during mother separation with locomotion during mother/child sequence	.96	.00
Absence of locomotion during mother/child sequence with presence of differential vocalization during mother reunion	-.96	.01

Table 6

Correlations Between Behaviors in Abuse Group

Behaviors	r value	p value
Bayley score with absence of locomotion in mother/child/stranger sequence	.64	.05
Responsive exploration during free play with distress during mother separation	.95	.00
Absence of following during mother separation with distress during mother separation	-.85	.00
Cries during mother separation with distress during mother separation	.99	.00
Absence of soothing in mother/child sequence with occurrence of differential vocalization during mother reunion	-.65	.03
Absnece of following during mother separation with responsive exploration during free play	-.90	.00
Absence of soothing in mother/child sequence with absence of locomotion in mother/child sequence	.65	.04
Cries with mother separation with responsive exploration in free play	.95	.00

representative patterns of normal mother-child interaction were not present, then investigation and intervention into the mother-child relationship would be indicated.

CHAPTER V

SUMMARY AND CONCLUSIONS

The results of this study indicate that there is a significant difference in attachment behaviors manifested by 9 to 23-month-old abused and nonabused children during brief separation from and reunion with their mothers. There appears to be a difference in the mother-infant interactional process between the two groups as evidenced by a distortion in the bonding process between mother and child in child abuse or child neglect situations. Lack of attachment behaviors in the abuse cases studied appears consistent with Ainsworth's (1963) observations of children in the "nonattached" group.

This study contained a number of limitations. Because this research was done on pilot work, the groups were not precision matched or randomly selected. This limits the ability to make inferences from the study to generalized populations.

Observed events are subject to bias of cultural background and personal interpretation (Treece & Treece, 1973). To adjust for this, the double blind situation was used. However, the raters were aware of the hypothesis being studied even though they did not know which group they were scoring. This may have biased their ratings. The differences between the groups struck even those raters who had little child development background.

It is impossible to determine the exact effects of the experiment or the stranger on the subjects. Although both groups were exposed to the same treatment variables, the stranger's and mother's differential responses to the children in these two different groups which were not measured, may have entered in. Sex differences and/or similarities between the sex of the abusing parent and the stranger were not studied, but may have affected the abused children's responses. Since many of the abuse cases were referred to the research project from social service agencies, cooperation was not as voluntary and anxiety-free for this group as it was for the control cases. Abusive mothers appeared more concerned with "looking good" for the referring agency. The ways in which anxiety in these mothers affected their children's behavior constituted a confounding variable.

A relatively large number of variables and small sample size made it difficult to precisely identify behaviors relevant to any single variable. Using a wide age range, as this research did, gives only a broad general description of differences which are specific to the groups studied.

This study raises a number of unanswered questions. Are the differences among infant-mother dyads at one developmental stage predictive of differences at a later stage (Carins, 1972)? Because this study covered only a small, nonrepresentative sample in a time-limited setting, replication studies need to be done with a large population, using precision matching for age and sex. Longitudinal studies are needed to identify more precisely what effects abuse and/or neglect have on attachment and what changes occur with maturation. Starting

with six months and re-evaluating every three months would give a clearer picture. It has been shown that mothers treat boys and girls differently from early infancy on (Bayley & Schaefer, 1960). Precision matching for sex is needed to identify the effects which the sex of mother, child, and stranger have on attachment behaviors. The ways in which abuse enters the attachment picture also need study.

This research studied part of the mother-infant interactional process. Replication studies need to measure mothers' and strangers' behavior more directly than through the responses of children. Mechanical problems of losing observations of the mother and stranger's differential responses to the child could be alleviated by a two-camera system with the second camera operated by remote control. A split-screen device would allow the images to be recorded on a single tape. Time-locking equipment would avoid the clumsiness of using a stop-watch and increase accuracy of the rating.

It would be informative to expand the use of this paradigm to include fathers and siblings. Since child abuse is a family tragedy, what effects does abuse have on other members of the family?

What are the effects of hospitalization within the first two years of life on the formation of attachment? Interesting comparative studies with abused children and nonabused children who had previous hospitalizations would clarify how much weight previous separation has on the bonding relationship.

What are the effects of multiple caretakers on abused children? Future research could study the effects of working mothers in abuse situations.

This research indicates many areas for clinical evaluation and intervention. This paradigm could be used to assess the parent-child relationship and work with parents around specific identified issues. Nurses and other health service personnel could use videotape replays to stimulate discussion and demonstrate important points to the parents.

Mother-child evaluation would further help nurses assess the therapeutic intervention in child abuse cases and decide about the disposition of abused children. The quality of the mother-child relationship as well as the occurrence of abuse could be evaluated. In addition, longitudinal changes in the mother-child relationship following intervention could be evaluated. An example of this application of the paradigm would be the evaluation of the attachment relationship between foster mothers and children before children are removed from foster care and returned to their natural mothers, or vice versa. Using this paradigm, evaluations of the children's behavior with their natural mothers could be compared to that with their foster mothers. This would be useful information for nurses and other public service disciplines responsible for aiding the court in making custody decisions.

Information regarding "remnant effects" of abuse found in children in foster care and indications for types of intervention needed can be identified through the use of videotapes, which can also be useful in teaching foster parents specific parenting skills for these children.

This study indicates that there are significant differences

between abused children and nonabused children's responses to a time-limited mother separation and reunion. Nonabused children exhibited exploration behaviors and locomotion in a free play setting. During separation, nonabused children turn their heads toward the direction of their mother's leaving, and follow-through-locomotion toward the point where mother left. Mother separation also evoked crying and distress behaviors in nonabused children. Positive greeting behavior was significantly evident in the nonabused children upon reunion with their mothers after separation. Not all of the nonabused children exhibited all of these behaviors, but these children did exhibit at least seven of the nine behaviors.

The abused children were demonstrably different on these nine behaviors. During free play if the abused children explored it was minimal and their locomotion was minimal if it existed at all. Upon mother separation the abused children did not turn their heads or did so briefly, crying was minimal or absent, as was distress. The abused children did not follow-through-locomotion, and upon reunion there was absence of positive greeting with their mothers. Again, the abused children may not have exhibited all of these behaviors, but they characteristically exhibited eight out of the nine behaviors.

What is of great importance is that none of the abused children exhibited any of the combination of attachment behaviors characteristic of the nonabused children. For example, one abused child followed through locomotion when mother separated, but showed no crying, no distress and no positive greeting behavior to mother when she

returned. Also this child showed the same behaviors with the stranger upon separation and reunion.

Therefore, these nine behaviors can be considered essential variables for identifying functional and dysfunctional mother-child relationships.

REFERENCES

Ainsworth, M. The development of infant-mother interaction among the Ganda. In B. Foss (Ed.), Determinants of infant behavior II. New York: John Wiley & Sons, Inc., 1963.

Ainsworth, M., & Bell, S. Attachment, exploration and separation: Illustrated by the behavior of one year olds in a strange situation. Child Development, 1970, 41, 49-67.

Ainsworth, M., Bell, S., & Stayton, D. Individual differences in strange situation behavior of one year olds. In H. Schaffer (Ed.), The Origins of Human Social Relations. New York: Academic Press, 1971.

Ainsworth, M., Bell, S., & Stayton, D. Individual differences in the development of some attachment behaviors. Merrill-Quarterly, 1972, 18, 123-143.

Ainsworth, M. Attachment and dependency: A comparison. In J. Gewertz (Ed.), Attachment and dependency. New York: John Wiley and Sons, 1972.

Angel, K. The role of the internal object and external object in object relations, separation anxiety, constancy and symbiosis. International Journal of Psychoanalysis, 1972, 53, 541-546.

Bakwin, H. Loneliness in infants. American Journal of Diseases of Children, 1942, 63, 30-40.

Bayley, N., & Scaheffer, E. Relationship between socioeconomic variables and behavior of mother toward young. Journal of Genetic Psychology, 1960, 96, 61-77.

Bowlby, J. Nature of the child's tie to his mother. International Journal of Psychoanalysis, 1958, 39, 350-373.

Bowlby, J. Separation anxiety. International Journal of Psychoanalysis, 1958, 41, 89-113.

Bowlby, J. Attachment and loss (volume 2): Separation. New York: Basic Books Publishers, 1973.

Cairns, R. A psychobiological and social-learning synthesis. In J. Gewirtz (Ed.), Attachment and dependency. New York: John Wiley & Sons, 1972.

Cohen, L. The operational definition of attachment. Psychological Bulletin, 1974, 81, 207-217.

Erikson, E. Childhood and society. New York: W. W. Norton, Inc., 1963.

Fleener, D., & Couns, R. Attachment behavior in human infants: Discriminative vocalizations on maternal separation. Developmental Psychology, 1970, 2, 215-233.

Foss, B. (Ed.). Determinants of infant behavior II. New York: John Wiley & Sons, Inc., 1963.

Galdston, R. Observations on children who have been physically abused and their parents. American Journal of Psychiatry, 1965, 122, 440-443.

Galdston, R. Preventing the abuse of little children. The parent's center project for the study and prevention of child abuse. American Journal of Orthopsychiatry, 1975, 45, 372-381.

Gelles, R. Social construction of child abuse. American Journal of Orthopsychiatry, 1974, 45, 372-381.

Gewirtz, J. (Ed.). Attachment and dependency. New York: John Wiley & Sons, 1972.

Goldfarb, W. The effects of psychological deprivation in infancy and subsequent stimulation. American Journal of Psychiatry, 1945, 102, 18-33.

Goldfarb, W. Psychological deprivation in infancy and subsequent adjustment. American Journal of Orthopsychiatry, 1945, 15, 247.

Harmon, R., Morgan, G., & Klein, R. Determinants of normal variation in infants' negative reactions to unfamiliar adults. Unpublished manuscript, 1976.

Kempe, C., & Helfer, R. (Eds.). The battered child. Chicago: University of Chicago Press, 1968.

Kempe, C., & Helfer, R. (Eds.). Helping the battered child and his family. Philadelphia: J. B. Lippincott & Co., 1972.

Klaus, M., & Kennell, J. Maternal-infant bonding. St. Louis: C. V. Mosby Company, 1976.

Klein, M., & Stern, L. Low birth weight and the battered child syndrome. American Journal of Diseases of Children, 1971, 122, 15-18.

Leedy, P. Practical research and design. New York: McMillan Publishers, 1974.

Martin, H., Breezley, P., Conway, E., Kempe, C. The development of abused children. Advances in Pediatrics, 1974, 21, 25-73.

Milowe, I., & Lourie, R. The child's role in the battered child syndrome. Journal of Pediatrics, 1964, 65, 1079-1081.

Morse, C., Sahler, O., & Friedman, S. Three year follow-up study of abused and neglected children. American Journal of Diseases in Children, 1970, 120, 439-446.

Nazzaro, J. Child abuse and neglect. Exceptional child, 1974, 40, 351-354.

Ounsted, C., Oopenheimer, R., & Lindsey, J. Aspects of bonding failure: The psychopathology and psychotherapeutic treatment of families of battered children. Developmental, Medical and Child Neurology, 1974, 16, 447-456.

Paulson, M. Child trauma intervention: A community response to family violence. Journal of Clinical Child Psychology, Fall 1975, 5, 25-29.

Rosenthanl, M. Attachment and mother-infant interaction: Some research impasse and a suggestion for change in orientation. Journal of Child Psychology and Psychiatry, 1973, 14, 201-207.

Rutter, M. Maternal deprivation. Baltimore: Penguin Books, 1972.

Schaffer, H. Some issue for research in the study of attachment behavior. In B. Foss (Ed.), Determinants of infant behavior II. New York: John Wiley & Sons, Inc., 1963.

Schaffer, H. (Ed.). Origin of human social relations. New York: Academic Press, 1971.

Schaffer, H., & Emerson, R. The qualities of mothering: Maternal deprivation reassessed. New York: Jason Aronson, 1974.

Scharer, K. Nursing therapy with abused and neglected families. Paper presented at Child Advocacy Conference, April 1977.

Sears, R. Attachment, dependency and frustration. In J. Gerwitz (Ed.), Attachment and dependnecy. New York: John Wiley & Sons, 1972.

Silver, L. Child abuse syndrome: A review. Medical Times, 1968, 96, 803-820.

Silver, L. Psychological aspects of the battered child and his parents. Clinical Proceedings of Childrens' Hospital, 1968, 24, 355-364.

Smith, L. Effects of brief separation from parents on young children. Journal of Child Psychology and Psychiatry and Applied Disciplines, 1975, 16, 245-254.

Stayton, D., & Ainsworth, M. Individual differences in infant responses to brief, everyday separation as related to other infant and maternal behavior. Developmental Psychology, 1973, 9, 226-235.

Sterm, L. Separation of premature infants and mother may be a factor in child abuse. Hospital Practitioner, 1973, 8, 117-123.

Sullivan, H. The interpersonal theory of psychiatry. New York: W. W. Norton & Company, Inc., 1953.

Terr, C. A family study of child abuse. American Journal of Psychiatry, 1970, 127, 665-671.

Treece, E., & Treece, J. Elements of research in nursing. St. Louis: C. V. Moxby Company, 1973.

Walters, C. (Ed.). Mother-infant interaction. New York: Human Science Press, 1976.

Wulbert, M., Inglis, S., Kriegsmann, E., & Mills, B. Long delay and associated mother-child interaction. Development Psychology, 1975, 11, 61-70.

Yarrow, L. Attachment and dependency. New York: John Wiley & Sons, 1972.